

### REMARKS

Applicants wish to thank the Examiner for considering the present application. In the Office Action dated November 20, 2003, Claims 1-20 are pending in the application. The allowability of Claims 6, 17 and 20 if rewritten in independent form is acknowledged.

Claims 1 and 9-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* (6,507,793). Applicants respectfully traverse.

Claim 1 is directed to a communications system that has a stratospheric platform with a payload controller and a phased array antenna having a plurality of elements. A gateway station is also included in the communications system. The gateway station is in communication with the stratospheric platform. The gateway station scales the plurality of elements to form a reconfigurable plurality of beams. The gateway station communicates a control signal to the stratospheric platform to communicate a scaling of elements having adaptive interference rejection.

The Examiner cites the *Gross* reference for having a stratospheric platform and a gateway station. However, Applicants disagree with the Examiner that the gateway station of the *Gross* reference teaches or suggests a scaling of elements. The Examiner points to Col. 5, lines 10-22. Applicants can find no teaching of scaling of elements in this passage. It should also be noted that as recited in the claim, a scaling of elements is described as having adaptive interference rejection. The Examiner cites the *Rabideau* reference for adaptive interference rejection. Applicants admit that *Rabideau* does describe a type of adaptive beam forming that is used to prevent interference. The *Rabideau* reference is different than that of the present invention. The *Rabideau* reference as is best shown in Fig. 2 is used for receiving signals. The adaptive beamformer looks at the signals received by digital transformer 204 and provides feedback to the digital transformer to prevent interference. As is illustrated in Fig. 2, one type of interference is provided from various types of jammers on signal d. The adaptive

beamformer generates the weight  $T_{k+1}$  to remove the interference therefrom. This is substantially different than that of the present application. As recited in Claim 1, the gateway station communicates a control signal to the stratospheric platform to communicate a scaling of elements having adaptive interference rejection. No teaching or suggestion is provided in the *Rabideau* reference for the scaling of elements having adaptive interference rejection. The scaling of elements having adaptive interference rejection allows the system to transmit beams without interference. The scaling of elements is performed at the gateway station and then communicated to the stratospheric platform. The stratospheric platform and ground station are not taught or suggested in the *Rabideau* reference. By providing the stratospheric platform and thus the phased array antenna with a proper scaling of elements with adaptive interference rejection, less interference between generated beams is provided. Therefore, Applicants respectfully request the Examiner for reconsideration of this rejection since neither of the references teaches or suggests scaling of elements having adaptive interference rejection. It should also be noted that the adaptive interference rejection is performed on the element level. Therefore, even if the references are combined, the present invention cannot be formed.

Claims 9-11 are further limitations of claim 1 and should therefore be allowable for the same reasons set forth above.

Claims 2-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Rabideau* in further view of *Khalifa* (6,526,288). The *Khalifa* reference also does not teach or suggest the missing elements of the *Gross* and the *Rabideau* references.

Claims 7 and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Rabideau* in further view of *Chang*. Applicants respectfully submit that the *Chang* reference does not teach or suggest the missing elements of the *Gross* reference and *Rabideau* reference described above with respect to Claim 1. Applicants therefore respectfully request the Examiner to reconsider this rejection as well.

Claims 12-19 stand rejected as being unpatentable over *Gross* in view of *McWhirter* and in further view of *Howard*, and further in view of *Chang*. Claim 12 recites a ground station that has a beam generator for generating a plurality of beam control signals and a digital beamformer circuit that receives the beam control signals and generates a plurality of first element control signals having adaptive interference rejection in response to the beam control signals. The ground station further includes a multiplexer multiplexing the first element control signals and a RF signal correspond to the first element control signals. The communication further includes a stratospheric platform that has a payload receiver for receiving the RF signals, a demultiplexer demultiplexing the RF signals into a second plurality of control elements corresponding to the first element control signals and generating a plurality of beams in response to the second plurality of element control signals. With respect to Claim 12, the *Gross* reference is recited for teaching a digital beamformer circuit used to generate a plurality of first element control signals having adaptive interference rejection in response to the beam control signals. Applicants respectfully submit that the *Gross* reference does not teach or suggest this. The Examiner merely cites Col. 5, lines 10-12, of the *Gross* reference. Applicants respectfully submit that this element is not taught or suggested in the *Gross* reference.

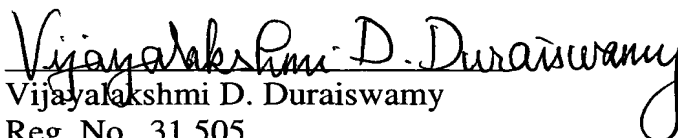
The *McWhirter* reference also is recited for “a digital beamformer receiving beam control signals and generating a plurality of first element control signals for generating communication beams and plurality of auxiliary element control signals for canceling interference from the communication beams. The Examiner cites Col. 4, lines 56-64, for this recitation. Although this passage recites the desirability of subtracting noise or jamming signals from the primary antenna signal, the *McWhirter* reference uses auxiliary antenna elements for which the phased array radar operates as an adaptive digital beamformer. No teaching or suggestion is provided in the *McWhirter* reference for generating element control signals having adaptive interference rejection in response to the beam control signals. That is, it is the first element control signals themselves that

include the adaptive interference rejection. These element control signals are used to control the elements of the phased array so that the beams generated therefrom have reduced interference with each other. Applicants respectfully submit that this is not taught or suggested in the *McWhirter* reference. Further, the *McWhirter* reference also does not teach that such signals are developed in a beamformer in a ground station and that these signals are communicated to the stratospheric platform for control thereof. Neither the *Chang* nor the *Howard* reference teach or suggest a digital beamformer in a ground station that receives the beam control signals and generates a plurality of first element control signals having adaptive interference rejection in response to the beam control signals. Therefore, even if the references are combined, the present invention cannot be formed. Applicants therefore respectfully request the Examiner to reconsider the rejection of Claims 12-19.

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Rabideau* in further view of *McWhirter*. The *Gross* and the *Rabideau* references have the deficiencies described above with respect to Claim 1. The *McWhirter* reference also does not teach or suggest the deficiencies. Applicants therefore respectfully request the Examiner for reconsideration of this claim as well.

In light of the above amendments and remarks, Applicants submit that all rejections are now overcome. Applicants have added no new material to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments which would place the application in better condition for allowance, he is respectfully requested to call the undersigned attorney.

Respectfully submitted,

  
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